

---

## The Opportunities and Challenges of Combined Use of Futures Commodity Exchange and Public Warehouse in the Crop Sector of Vietnam

---

Submitted 18/01/21, 1st revision 15/02/21, 2nd revision 03/03/21, accepted 20/03/21

László Kozár<sup>1</sup>, László Vasa<sup>2</sup>, György Iván Neszmélyi<sup>3</sup>

**Abstract:**

**Purpose:** This study suggests introducing two new institutions in Vietnam, the Public Warehouse, and the Commodity Exchange. Based on these institutes, recommends three commodity-financing methods for financing agricultural commodities, the classical public warehousing-based Lombard financing, the combined version of this with commodity exchange futures and a special 'Trading House' based commodity financing.

**Design/Methodology/Approach:** The study is based on nine-year-long history of connection building, lecturing and examinations of Vietnamese and international sources, furthermore, based on primary research in acquiring direct information from several academic and non-academic experts and prestigious market participants on the examined market.

**Findings:** In the case study the authors examined and presented the reflects to an efficient pattern that can be applied for other sectors and adopted by other developing countries. The establishment of an integrated financing model in vertical integration / supply systems can generate a win-win type of co-operation for all the stakeholders.

**Practical implications:** The combined use the functions of these institutions could help grain market participants, such as producers, manufactures, traders, and financiers for convenient business decisions, price, and credit risk management, and able to involve extra financing resources to the Vietnamese agriculture in a great extent. Beyond market participants advantages, these solutions can help to reach market regulation and stockpiling strategy goals for Vietnamese Government.

**Originality/value:** The proposed techniques offer relatively new solutions but could contribute to the further development of these fields while these methods can eventually be used in other sectors of the Vietnamese economy as well.

**Keywords:** Commodity exchange, public warehouse, Vietnam, cereals, coffee.

**JEL Classification:** F16, Q13, Q14, R51.

**Paper type:** Research study.

---

<sup>1</sup>Professor, Head of Institute of Commerce and Marketing, Budapest Business School University of Applied Sciences, Faculty of Commerce, Hospitality and Tourism, e-mail: [kozar.laszlo@uni-bge.hu](mailto:kozar.laszlo@uni-bge.hu)

<sup>2</sup>Professor, Széchenyi István University, Hungary; Institute for Foreign Affairs and Trade, Hungary, e-mail: [laszlo.vasa@ifat.hu](mailto:laszlo.vasa@ifat.hu)

<sup>3</sup>Professor, Faculty Head of International Relations, Budapest Business School University of Applied Sciences, Faculty of Commerce, Hospitality and Tourism, e-mail: [neszmelyi.gyorgy@uni-bge.hu](mailto:neszmelyi.gyorgy@uni-bge.hu)

---

## 1. Introduction

Vietnam is one of the most prominent countries of the Southeast Asian region, one of the ten members of the Association of Southeast Asian Nations (ASEAN) that seems to be one of the most rapidly growing economic hubs of the world nowadays. Over its half-century history of ASEAN, its members have been among the most spectacularly developing countries in the world. The member countries in total represent a population of over 600 million people, which - in case of the continuation of the economic growth and increasing incomes – foresees considerable growth in consumption for the coming decades. According to its population ASEAN is bigger than the European Union or the United States, it is the third largest market in the world, behind only India and China.

The authors have examined the market potentials and possibilities in the Southeast Asian region for decades, publishing their results (Neszmélyi, 1999; Kozár and Neszmélyi, 2017; Thuy, Nguyen Thi Thu, and Vasa, 2018) and on the basis of their preceding secondary and primary research they believe that introducing and operating commodity exchange and public warehouse in Vietnam could be a viable business solution from which all the stakeholders could benefit, moreover the implementation of such a system could be one of the core projects in the field of the bilateral economic relations between Vietnam and Hungary.

Vietnam has a very huge potential for crop production. Annually 30 million tons of rice, 10 million tons of maize and 10 million tons of coffee (and several other crops in huge masses) are harvested. This enabled Vietnam to be among the biggest exporters of the world. However, the procurement system of crops, including an advanced form of pre-financing is missing. Therefore, the producers face difficulties in their financial liquidity as well, and there are huge gaps in the logistic system of the supply chain.

In general, it can be underlined that the concept of the electronic agricultural purchasing marketplace may work anywhere that embodies a novel approach to today's agriculture based on modern technologies offering an opportunity to both agricultural producers and suppliers (Vasa, 2011; Erdeiné Késmárki-Gally, 2018; Sokil *et al.*, 2018). However, in case of Vietnam, the situation is more complex as the market-oriented companies and improving market-friendly regulations are sometimes in contrast with the “old school” socialist political guidelines and leadership. The authors have travelled to Vietnam and other ASEAN countries several times in the last years and have examined the research topic from a market point of view (contacted a number of companies, involving banks, brokerage firms, traders, warehouses, ports and producers to explore the market possibilities, collected data made deep interviews with specialists of financing exchange trading warehousing and investment). As a result of the on-site research the authors verified that there is a market demand for the aforementioned two institutions in Vietnam and also in other countries in the region.

### **1.1 The Goal of the Research**

The main goal of this research was to draw attention of Vietnamese research partners, market participants and encourage Vietnamese decision-makers in making relevant economic policy decisions taking the necessary regulatory steps with contributions of these partners. All this would create a new commodity/trade finance facility in Vietnam. The market demand for the appearance and operation of the two institutions, Commodity Exchange and Public Warehouse seems obvious. The most important barriers to market entry are recognizing the benefits of using institutions on the Vietnamese market, consequently, the lack of economic policy decisions and the lack of the necessary regulatory framework.

The present research focuses on the examination of these factors and the necessary legislative background, the areas to be transformed and to be developed. To do this, in addition to direct stock exchange and public warehousing issues, in-depth analysis of related areas is required to produce a study based on a complex information base. The authors have determined intention to introduce the subject in complete form, starting with the necessity and actuality; explaining the present situation based on the research and finally describe their arguments for implementation of these institutes. Finally, the authors intend to give a suggestion for commodity financing with the present regulatory system. They are convinced that the biggest problem of Vietnamese agriculture market is the lack of financing. The possibility of introduction of the mentioned institutions is the best solution to solve the financing problem, and at the same time the authors are aware that changing basic rules is a complicated procedure in a so called 'socialist' economy comparing to the European or American free market situation. Regarding the free market characteristics of Vietnamese economy against political system; the authors' last suggestion is based on the present regulatory situation.

The authors believe that this solution could efficiently manage the emerging financing problems without complicated regulatory changes and the result could be similar of the solution given by market institutes introduction. This can be convenient for market participants especially for financial banks. From governmental point of view the introduction of market institutes is the relevant solution because of at least the following two reasons: in one hand these institutes can help for regulating and stockpiling strategy, in the other hand these are the best channels for monitoring one of the most important field of the national economy of Vietnam.

### **1.2 Method of Research**

The study consists of primary and secondary research, and the conclusions and recommendations are based on the synthesized results of the two closely related examinations and the evaluation of the results thus obtained.

The data were collected by secondary research from national and international statistical databases, regulatory and current economic policy information background, banking, financing databases, the HOSE Stock Exchange information basis, the Vietnam Singapore Industrial Park VSIP, as the biggest inventory and industrial park, and bibliographic sources, like several theses and articles. As a primary research, the authors made several interviews and professional conversations with experts from different areas of the research topic. These conversations, however, did not shape as classic in-depth interviews, lasted one to two-hours, and could provide us with accurate information about the way of thinking of decision-makers, the past and present situation of economic policy in Vietnam including the limitation factors in market liberalization, moreover the difficulties of introduction of new or little-known institutions and solutions and so on.

From among the locally well-known managers with whom we managed to prepare interviews mention has to be made about the Director of International Connections of HOSE (HCMC Stock Exchange), the Vice President of VSIP, the former Chairman of State Committee for Finance and Monetary Supervision, the President of a Singaporean Investment Company, in warehousing, logistics, finance, regulatory and economic policy areas.

## **2. The Vietnamese Agriculture Economy and Trade from the Point of View of Exchange Commodities**

### **2.1 The Current Situation**

Appropriate and motivational policies have activated potential advantages of Vietnamese agriculture. This significantly contributes to the development of the national economy, particularly to the agricultural and rural sector. Vietnam's agricultural growth has been relatively high and stable an average growth rate of approximately 3.3% per annum. This growth not only meets the demand for food supply and raw materials in the domestic industry and service development but also contributes to the export market (about 50% of agricultural-forestry-aquatic products were produced for export in the recent 5 years). Agriculture is the only sector that experiences trade surplus, which reached over USD 8 billion in 2018. With abundant supply and extensive international integration, Vietnam's agriculture has been linked to changes in the world market (IPSARD, 2017).

Vietnam's agriculture has been integrating by the globalization process into the integration of world economy – among others – by generations of free trade agreements (FTA). These FTAs began with the first generation of FTA that focused on liberalization of goods trading, including tariff reduction, and non-tariff barrier removal. Vietnam has signed 12 FTAs with 56 countries and economies in the world, 10 of which have entered into force and Vietnam has fully implemented all WTO commitments. In that global playing field, Vietnam has accepted non-protection commitment, and complied with most of the standards required by

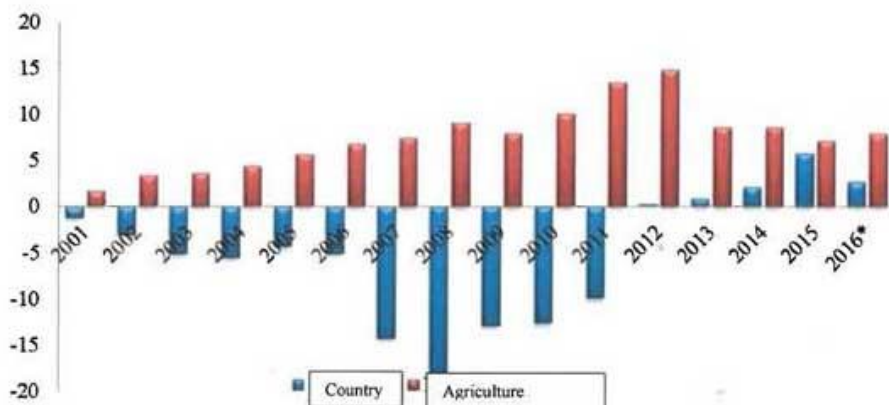
member countries and world market. International integration in the future requires Vietnam to accept immediate competition and abide by standards set by countries in terms of economic, social, and environmental fields (Nguyen, 2018).

**Figure 1.** *The growth of GDP in Vietnam, 19890-2020 (Billion USD)*



*Source: IMF 2021 (Actualities)*

**Figure 2.** *National Trade Balance and Agricultural Trade Balance*



*Source: Nguyen Ngoc Mai (2018) based on GSO 2016 and MARD, 2017*

Vietnam, - with its growing supply of commodities - has gradually asserted itself in the global agricultural-forestry-aquatic products (AFAP) market. Vietnam has also witnessed impressive growth in exports over the past few years through international economic integration, and participation in bilateral and multilateral FTAs. The total value of AFAP exports in 2017 reached US\$ 36.4 billion, an increase of 14 times compared with that of 1995 when Vietnam joined in ASEAN, marking an annual growth rate of 12.9%. Several AFAP have high export value in the world, including cashews, peppers, pangasius, coffee, wooden furniture, and rice. However, export prices are relatively low as most exported goods are raw products such as rice, pepper, and cashews (Table 1).

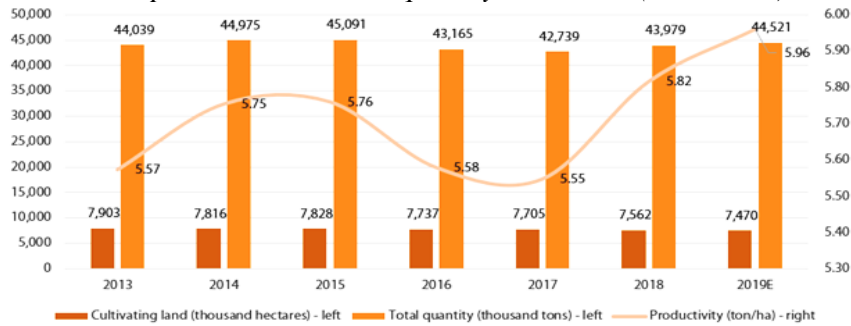
**Table 1. Position of Vietnamese agricultural exports in the world**

Category	Global Exports (USD Bln)	Vietnam Export Share (%)	Vietnam export value ranking	Export Price ranking
Rice	20.1	11.3	3	10
Fruits and vegetables	177.6	2.1	19	15
Coffee	30.9	10.6	2	10
Pepper	4.7	23.9	1	8
Cashew (raw)	7.6	46.8	1	6
Rubber	170.2	11.4	3	10
Tea	7.3	2.2	9	10
Shrimp	18.6	16.9	1	2
Pangasius	1.8	96.0	1	1
Wooden furniture	127.8	6.0	2	4

*Source: The authors' compilation based on Nguyen Ngoc Mai (2018) and ITC-Trade map, GDVC, (2017).*

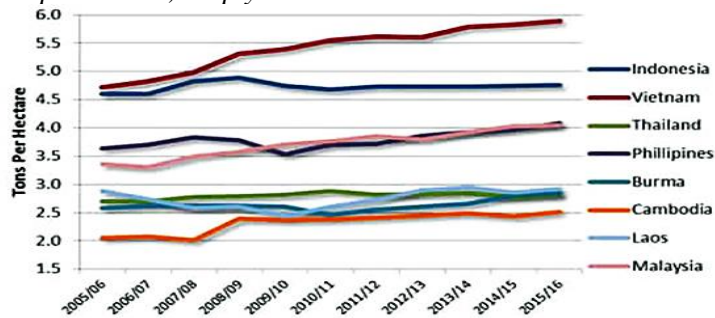
The country has a huge production basis, one of the world's leading producers and exporters in case of rice and coffee and the productivity shows increasing trend (Figures 3 and 4).

**Figure 3. The rice production area and quantity in Vietnam (2013-2019)**



*Source: Nguyen Tung (2019) on the basis of General Statistics Office of Vietnam, Rong Viet Securities.*

**Figure 4. Rice production, crop yields in Southeast Asian countries 2005-2016**



*Source: USDA Commodity Intelligence Report (2015).*

Based on recent (2019) information available the potential public warehouse market can be described in terms of agricultural products with the following numbers. (Table 2):

**Table 2.** *The potential Vietnamese public warehouse market*

<b>Product</b>	<b>Production/year 1,000 tons</b>	<b>Price USD/ton</b>	<b>Value USD Million</b>
Coffee	1,800	~2,300	4,100
Rice	46,000	~500	23,000
Corn	6,000	~260	1,600
Total	53,800	-	~28,700

**Source:** *The authors' compilation based on ICE, NASDAQ, IG UK, CME, FAO (2019).*

As for the Vietnamese rice production prospects recent years, the production in 2020/21 was estimated at 27.0 million metric tons (milled basis), 1 percent lower than the preceding year and 2 percent lower than the recent 5-year average. Harvested area was estimated at 7.4 million hectares, which means 1 percent decrease from the previous year and 3 percent shrink from the 5-year average (USDA, 2020). While the present figures represent still robust production potentials, Vietnam's rice production has declined steadily since 2017/18, and the production area has also declined consistently at a rate of 1 % on an annual basis since 2016/17.

However, the growing yields can slightly compensate the mentioned decrease as rice yield is forecasted at a record 5.84 tons per hectare, up slightly from the previous year and 1 percent higher than the same of the preceding 5-year average (USDA, 2020).

The research-based picture about Vietnamese Agri-product market, as well as the evidence above helps in outlining some general insights on the development trends of global agricultural, especially rice and coffee market and the position of Vietnamese agriculture as follows:

- Vietnam's agriculture possesses with strong supply capacities, and has been participating in international integration, and is increasingly dependent on the world market.
- The world has been witnessing a robustly growing demand for rice and coffee along with the global economic growth, particularly since the beginning of the 21<sup>st</sup> century.
- Prices of these commodities have closely linked to the changes in oil prices and other financial investment channels as well, and the trend of short-run fluctuations has become increasingly frequent.
- It has to be underlined that Vietnamese agriculture sector suffers of the lack of financing. The production sector has serious loss because of the partial lack of enough storage capacities, that causes more than one million tons of wastes just in case of rice, even more than the effect of the low dumping prices of both the

rice and coffee as well. Vietnam has the highest production level in ASEAN region as clearly illustrated in Figure 4, but it is not reflected in revenues, as Vietnamese average export prices are 20% lower than the same of Thailand, despite the fact that the registered exchange market price is higher.

Vietnamese rice production and export market has still a relatively high ‘price reserve’ and possible profit reserve for producers, traders, and the whole national economy. The situation is similar in case of coffee, corn, pepper, and other strategic products of Vietnamese agricultural market.

## **2.2 The Agriculture Restructuring Policy**

The Prime Minister’s Promulgated Decision 899/QD-TTg dated on 10 June 2013 approved the restructuring of the agricultural sector projects aiming at enhancing added-value and sustainable development in the sector.

The restructuring programme focuses on three major themes as follows:

- To develop a market-oriented agricultural production, promoting products with advantages, connecting with industry and agricultural supporting services;
- To reorganize in ways of large-scale production, develop co-operatives, and foster chain linkages. Encourage private investments and improve public investment’s efficiency;
- To promote the application of science and technology, create new, high quality varieties, develop fine and comprehensive processing technologies, foster the implementation of innovate technologies, to reduce exploitation of resources and the negative impacts on the environment.

Mention must be made about the major limitation factors of the restructuring program as follows:

- The restructuring process is slow, while several localities have no clear plans to identify the appropriate structure and advantages; production is beyond plan and in movement.
- The income and living conditions of people, especially in distant and mountainous areas encounter great difficulties with slow improvement; the rate of poor households remains relatively large.
- The new achievements of the rural development are uneven with large gaps amongst localities and regions. Regarding implementation, most localities have focused on improving infrastructure facility whereas the development of production, cultural lifestyle, and environmental protection have not been paid proper attention to.

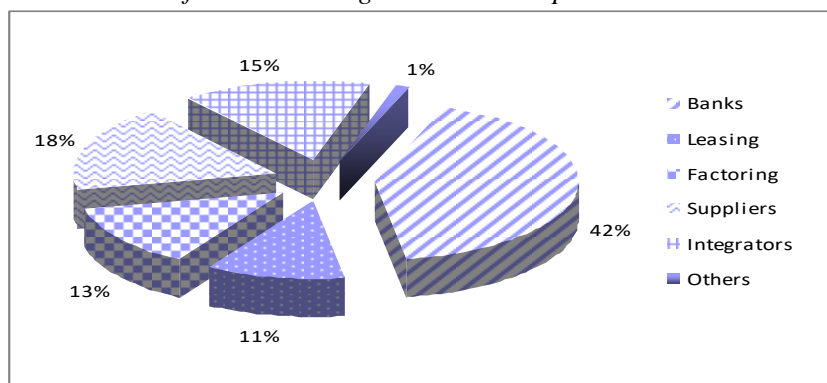


- Wastewater and waste gas pollution in industrial parks and craft villages are directly deteriorating the environment, endangering the sustainable livelihood of the people, and depleting natural resources.
- The market is unpredictable while the efficiency of the statistical data collection and forecasting are still weak, and prices usually fluctuate. Agricultural products for export are primarily raw, and the quality is often hard to categorize. The majority, around 80% of agricultural products are not built on any brand, logo, or label.
- Underfunding, partly in the case of production; but even more so in case of inventory and market access.
- Market risks which can be more important limiting factor than production limiting factors, like weather and soil conditions, phytosanitary problems etc.
- Financial problems of agricultural enterprises mean the main limitation factor of the restructuring program as well as the biggest impediment of development of the most important sector of Vietnamese economy.

### 2.3 Financers of Agricultural Enterprises

In Vietnam, unlike to other countries with momentous agriculture, there has not been developed specialized network for institutional agricultural financing. The sector's financing is being done mainly by commercial banks, based on their own regulations, and evaluating system. Nowadays, the liabilities of private enterprises and corporations in agriculture is close to fifty billion USD. The leading role of commercial banks is evident as shown in Figure 5 which illustrates the shares of the most prominent financing forms within the sector.

**Figure 5.** *Financers of Vietnamese agricultural enterprises*



*Source: The authors' compilation (2019).*

As most of the indirect financers of the sector such as factoring companies, leasing companies, and integrators, are also re-financed by commercial banks, the leading position on the market gains even higher importance. It must be mentioned that in

many cases the banks are present on the credit market as intermediaries when the primary financier is the state. The interests of the sector and of the national economy in many cases are in contradiction with the profit-orientation of the financiers: the financial sector will only grant credits on strictly commercialized basis for agriculture as well, by guaranteeing the due profit on the credited amount. Thus, even in case of public utilities, no system of preferences can be introduced into the credit system.

Due to their volume and because they can be turned into one's own capital, state subventions are to be regarded one of the most important elements in financing agricultural enterprises. To the enterprises, these resources are unencumbered and/or work as own resources either indirectly – as they have been accounted as other incomes 'or directly' because of placing them into capital. The system of criteria according to which these subsidizations can be obtained, as well as their form and size is elaborated according to the agricultural political directives depending on the budgetary policy of the given year. Further examining the mentioned diagram, looks obvious that the highest percentage of financing is provided by contractors.

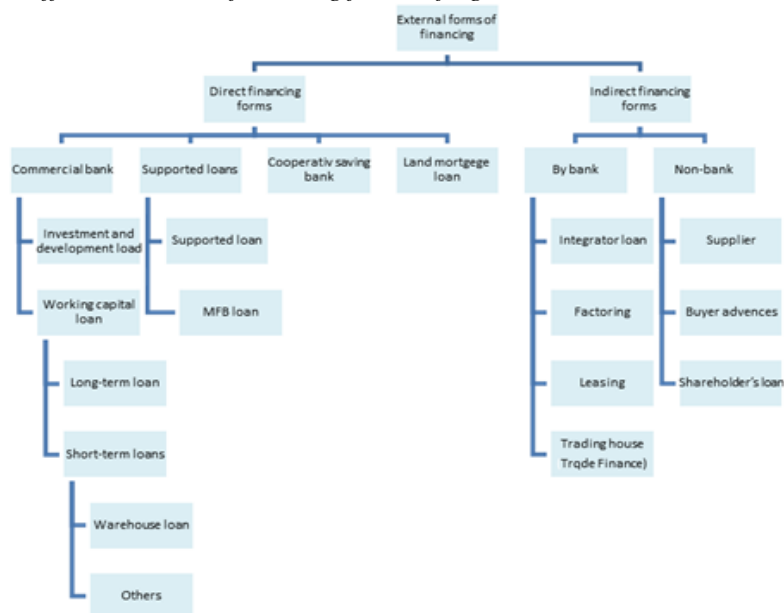
A matter of a further study would be the growth rate of the days financed by the contractors, and respectively their co-relationship with their winding ups within the sector. Even the logistical aspects play an important role in it.

#### **2.4 The Forms of Financing in the Vietnamese Agriculture**

Regarding its provenance, financing has its internal and external (and direct and indirect) forms (Figure 6). The latter ones play significant role mainly in the first stage of existence of an enterprise, because of the scarce possibilities of obtaining credit loans. The most common types of internal resources are accounting depreciation expenses and reinvested profits. Characteristically, these resources are to be found on an extremely limited scale in the agricultural sector, which is explainable by the low profitability. Financing through internal accumulation is impeded by the fact that the owners usually withdraw the most part of the acquired profit from the production to achieve an investment generating higher profit, as now the ROE profitability of the sector does not reach even the yield of the government securities.

The financing choices offered by the merchant banks differ from each other in their terms, like the aim of the loan, interest, duration, currency, security structure" and show a rather heterogeneous image. In case of investment and developmental loans the banks examine first the applicants' income generating capacities on the long run. Another type is the working capital loan when the efficiency of the economy is examined, and the parameters of the collaterals play a decisive role. The shorter the duration, the more important the value of the collateral, its stability and saleability opposed to the economic indexes of the enterprise.

Figure 6. Different external financing forms of agriculture



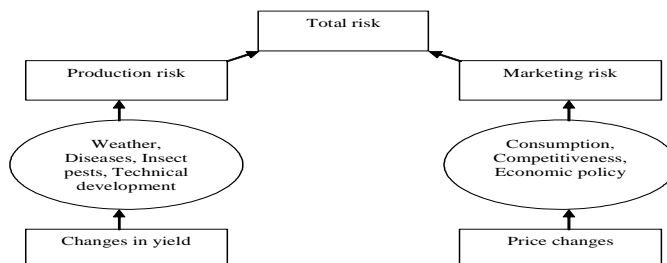
Source: The authors' compilation

### 3. Risk Management Applying Futures Trading

#### 3.1 The Possible Risk Factors in the Rice and Coffee Sectors

Because of the nature of agricultural production, there are several different risk generating factors that must be handled. These risks can be production (natural and technical) or economic risks. The probability of the risk causes a problem for the market participants day by day. The risks of agricultural firms can be divided into two big groups, according to their nature, as shown in Figure 7.

Figure 7. Risk factors and their effect in agriculture



Source: Ortmeier, 1972.

Managers of agricultural firms use the two categories of uncertainty and risk as synonyms. The risk management strategies of agricultural enterprises according to

(Castle *et al.*, 1992) are as follows:

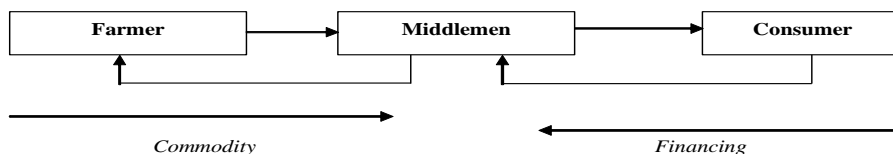
- Flexibility;
- Tenancy;
- Marketing possibilities;
- Financial management alternatives;
- Insurance.

Price risk has become a more immediate issue for both farmers and agribusiness companies in the United States and all around the World, due to the long-lasting disputes in WTO, that froze its Doha round in a stalemate. To analyse the role and applicability of the mentioned two financial instruments, we need to look back into the past to see their historical background. The modern futures trading started in Chicago in the 19<sup>th</sup> century. The Chicago Board of Trade was founded in 1848 and trading with futures contracts started in 1865. The Exchange had hundreds of members, and the turnover in grain futures contracts were in millions of tons. Besides its direct significance in business, it must be underlined that this way is one of the oldest and still well-functioning risk management method in the World. (Belozertsov *et al.*, 2011; Roache, 2008). Vietnam is an agriculture-oriented country as more than 60% of the population have direct connection of production, manufacturing, or trading of agricultural commodities. Therefore, a properly adopted way of the mentioned methods to the local conditions could be of a great importance and could be beneficial not only for the agricultural sector but for most of the Vietnamese society.

### 3.2 Handling Risk Factors by Futures Commodity Exchange

As it was mentioned above Vietnamese market players are ready and the Vietnamese crops (grain, rice, coffee, pepper, etc.) market needs a real commodity exchange, with as high turnover as possible. To reach this goal there are minimum two very important labour-intensive tasks. The traditional way of commodity marketing is shown in Figure 8.

**Figure 8.** *Traditional commodity marketing*

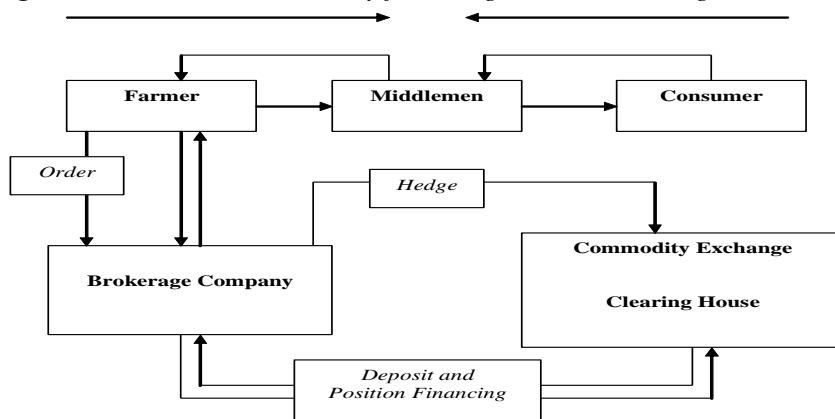


*Source:* Own study.

The commodity exchange business is in a special situation in Vietnam. There is a 'so-called' commodity exchange in the country, but it is unsuitable to handle the needed risk management of the most important commodities, such as rice, coffee, pepper, corn etc. Because of this situation, the interested players in the business:

traders and manufacturers rather use American exchanges with their services, techniques, organization and guarantees. The entire market uses the prices of the given commodity exchange as target prices, but producers do not have the necessary information about this risk management solutions. The traditional method of commodity marketing with a short hedge is shown in Figure 9.

**Figure 9.** *Traditional commodity financing with a short hedge*



*Source: The authors' own compilation.*

### **3.3 The Current Situation in Stock Exchange Trading - the Market and the Regulatory Issues of Derivatives**

Vietnam has two stock exchanges now, one of them is in Hanoi. Hanoi Stock Exchange (HNX) in the capital of Vietnam and the other one is in Saigon (Ho Chi Minh City), Ho Chi Minh City Stock Exchange (HOSE) in the business centre of Vietnam.

Besides the two stock markets, both have derivative markets, indexes, and treasury bonds. In one hand the organization and the activity of these exchanges are professional, both are suited to introduce the most important derivatives, such as commodities and currencies (NYMX, 2005; HNX, 2018). While there is no real reason to maintain two stock exchanges in the same market in parallel, but this phenomenon is one of the very typical examples of the regulatory system of the so-called 'socialist' economy. The only reason of existence of HNX is prestige and pride: the centre of the system must have been the strongest in any fields. The authors believe it will be closed soon in the lack of its need. Contrary to HNX, HOSE is the "real", functioning exchange in Vietnam, with long term future. Table 3, Figures 10-11 show information and figures of transactions in 2019 in HOSE in volume and value.

**Table 3. The transactions in HOSE**

TRADING SCALE IN 12 MONTHS  
Unit: Vol - 10 shares, Price - 1000 VND, Value: VND mil

Month	Order matching		Put-through	
	Vol.	Val.	Vol.	Val.
08/2019	100,604,844.00	22,166,325.04	40,267,910.30	13,726,586.41
07/2019	290,139,571.00	66,394,361.83	68,099,406.70	19,224,238.29
06/2019	227,524,501.00	50,267,280.57	88,784,984.80	21,833,235.09
05/2019	268,118,953.00	59,185,149.52	79,295,309.30	25,696,397.98
04/2019	240,416,052.00	49,550,598.99	70,365,599.90	15,471,521.08
03/2019	363,160,623.00	76,402,783.37	88,124,425.10	21,966,448.01
02/2019	252,496,189.00	54,567,326.24	36,815,283.30	9,964,482.19
01/2019	232,408,977.00	43,803,319.59	58,267,041.20	14,709,266.57
12/2018	270,881,502.00	56,583,064.03	104,854,282.80	25,905,051.23
11/2018	274,184,262.00	55,865,336.87	51,861,269.20	17,204,551.25
10/2018	382,081,042.00	84,440,333.61	62,797,334.40	31,394,619.28
09/2018	336,953,133.00	74,543,839.11	45,961,187.50	12,177,466.75

Source: HOSE (2019).

**Figure 10. The transactions in HOSE**

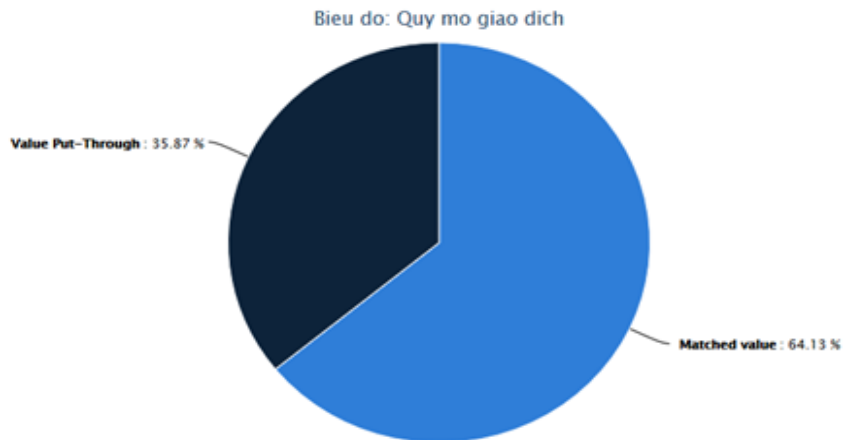
Trading Data - Stocks

Volume / Value	Order matching	Put-through	Total
<			>

Deal

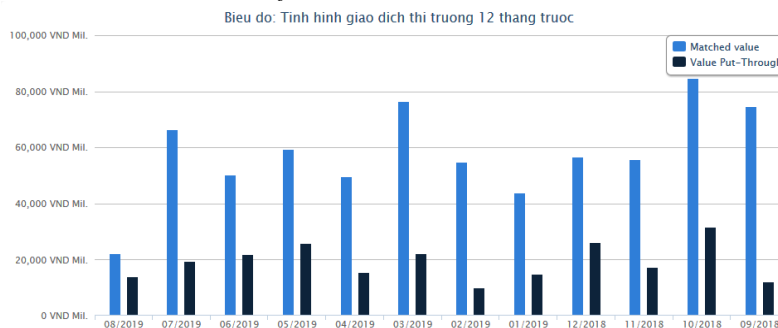
Unit: Vol - 10 shares, Price - 1000 VND, Value: VND mil

Trading Scale		Trading Scale - OI1		Bid		Ask	
Volume	Value	Volume	Value	Bid vol.	Bid vol.	Ask vol.	Ask vol.
18,634,858.30	4,515,733.59	13,109,212.00	2,895,721.38	81,380.00	25,546,985.00	77,468.00	24,977,589.00



Source: HOSE (2019).

Figure 11. The transactions in of HOSE



Source: HOSE.

The current research focuses on derivatives; primarily commodity exchange futures trading possibilities, but the current study does not extend to the analysis of stock exchange securities trading, only focuses on the commodity exchanges. Based on the information collected with the help of Mr. Huynh Dang Khoa, Director of International Connections of HOSE, the stock market institution, technical background, and professional skills provide the background for the expansion of the derivative market, even for the most important commodities and currencies.

Besides the two mentioned stock exchanges, a new one, the BCCE (Buon Ma Thuot Coffee and Commodity Exchange) as third institution was opened in 2015. The BCCE, formerly known as the Buon Ma Thuot Coffee Trading Centre, has a total charter capital of VND 75.5 billion (USD 3.5 million), including 42 per cent sourced from the People's Committee of Dak Lak Province. The exchange trades in two products: spots and futures for Robusta coffee and it is connected to global commodity exchanges, such as the Chicago Mercantile Exchange (Buon, 2018).

Tran Thanh Hai, BCCE general director, stated that Vietnam's coffee export is less effective than other coffee-growing countries, especially Robusta coffee. Vietnam accounts for about half of the world's Robusta coffee production, but the other coffee-growing countries could benefit three times more from coffee exports each year. The trading of Vietnamese coffee at the BCCE creates conditions for farmers to sell directly to buyers at the London Coffee Exchange, and it helps Vietnamese farmers to avoid being forced to sell at low prices.

In 2008, the Buon Ma Thuot Coffee Trading Centre had no efficient operation because it lacked capital and a good operational mechanism, while many farmers could not conduct transactions at the centre. The establishment of the BCCE is expected to solve problems for commodity transactions and help seize business opportunities. Additionally, feasible deposits in cash or coffee are considered as a suitable solution for small business households in the Central Highland region of Vietnam.

Besides Robusta coffee, BCCE plans to trade in other crops, like black pepper and rubber. This is a relatively small market in the main coffee production region which is not suitable for being the commodity and currency futures market of Vietnam in its present status. But this is the first professional initiative in this direction, the Vietnamese market participants and professionals are definitely understand the market situation and problems. They are ready for establish the futures derivative market of Vietnam, in the frame of HOSE or independently as well. The only real limitation is the positive political decision.

Further to the mentioned exchanges, the newest Exchange is the recently established MXV Mercantile Exchange of Vietnam. MXV is a joint stock company, licensed and managed by the Ministry of Industry and Trade of Vietnam with the view of purchasing and selling goods.

The legal antecedents of the establishment of VNX can be summarized as follows:

- Decree no. 158/2006/ND-CP issued by the Prime Minister of Vietnam on 28/12/2006 specifying the Commercial Law on the establishment of a commodity exchange and commodity trading activities through commodity exchange.
- On 1/09/2010, the Ministry of Industry and Trade issued license no. 4596/GP-BCT establishing the first commodity Exchange in Vietnam – Vietnam Commodity Exchange (MXV) (DBA: VNX). VNX was granted permission to trade with coffee, rubber, and steel.
- On 09/04/2018, Prime Minister officially signed Decree no. 51/2018, amending and supplementing Decree 158/2008, detailing the Commercial Law on goods transactions through commodity exchange. 08/06/2018, Ministry of Industry and Trade signed the document to allow the official name of “Mercantile Exchange of Vietnam” to be used in domestic and international transactions.

After the approval, MXV has officially brought Vision Commodities system into operation, through which widely supplies to all investors that have demand for trading commodity derivatives inside and outside of Vietnam. The relevant registered commodities are as follows: corn; wheat; soybean and oil; Robusta coffee; Arabica coffee; rubber, cocoa, sugar; cotton as agricultural products and different metals and energy sources. It is interesting that rice is not among the listed commodities.

There are now real futures turnover on the exchange registered in this moment on MXV. The Institute is established, technically ready; cooperates with the world’s leading exchanges and offers service for members and partners in market information and risk management. Based on the examination of the Vietnamese exchange, trading and institutional background particularly focuses on derivatives especially commodities. The authors can conclude that the system is ready to start,



the real futures trading and market participants will be in the beneficial situation to create risk management and investment business on MXV in case of different commodities soon.

#### **4. The Advantages of Public Warehousing in Commodity Financing**

##### **4.1 The Current Situation of Warehousing Market in Vietnam**

In Vietnam, the most important two agricultural crops in volume and value are rice and coffee. Vietnam is one of the world leaders in both products in quantity of production and exports as well. Price volatility is one of the biggest problems in Vietnam, which affects both domestic and export markets. Warehousing capacity regarding the main agricultural products is very 'colourful' regarding the size and the quality, as well as the storage technology. One can find outdated, malfunctioning machinery and cutting-edge robotic technologies in parallel. Warehousing market in Vietnam develops noticeably fast and it is expected to reach over USD 8 Billion by the end of 2022 according to analysts of Ken Research.

Warehousing facilities play a vital role in the overall supply chain process. In Vietnam, the companies operating within this segment witnessed adopting a warehouse management system that supported multi-location management, through effective order management, auto-refilling of inventory, auto-generate purchase order to supplies and receiving automatic updates against inbound orders (MONRE, 2019). Vietnam warehousing market is expected to register a positive CAGR (Compound Annual Growth Rate) of 13.4% during the forecast period 2018-2022. The market is further expected to be driven by continuous flow of FDI (Foreign Direct Investment) from foreign multi-nationals and the government's efforts towards the development of logistics infrastructure and consistent economic growth (Tilton, 2010).

Despite the situation mentioned above, the leading producer's role is to handle the price and storage risks and the fast-developing logistic background. Vietnam does not have public warehousing (PW) system and there is no current legal solution for PW. This is a regulatory shortage. The government should act as a bridge between local businesses, business organizations and markets, and large processing and trading companies by providing market information.

##### **4.2 An Example - Rice Stockpiling Action in Vietnam**

According to a Ministry of Industry and Trade report, Vietnam shipped more than 223,000 tons of rice to China in the first five months of 2019, tumbling nearly 74% compared to the same period of the preceding year. China used to be Vietnam's largest rice importer, accounting for 40% of Vietnam's total rice exports, but it now ranks third after the Philippines and Malaysia, representing only 8.1% of the total imports. Deputy Minister of Industry and Trade Tran Quoc Khanh said that local

exporters have faced many difficulties this year as major traditional markets such as China, Indonesia and Bangladesh have slashed imports. Between January and May 2019, the three markets imported a combined 239,000 tons of rice from Vietnam, down over 83% year-on-year.

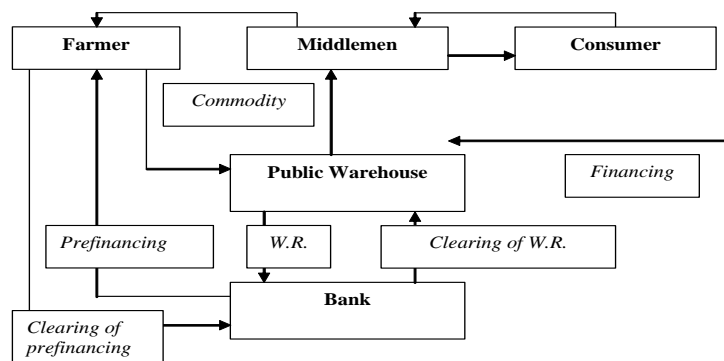
However, Vietnamese exporters have been exploring new markets for the staple food. As a result of it, the nation's rice export volume hit 2.76 million tons, down just 6.3% year-on-year, whereas Thailand reported a 16% decrease. Khanh predicted further challenges for local firms in the coming days. For 2019, the Chinese government has granted a rice import quota of 5.32 million tons, but the actual volume might be as low as 3.5 million tons, one million tons lower than last year.

China's customs statistics showed that rice imports reached 850,000 tons in the first four months of 2019, down 24.4% year-on-year. Meanwhile, its export volume soared 112.4% to nearly 830,000 tons in the period. Major rice exporters such as Thailand and Indonesia have considered China a new rival. The nation is forecast to become the fifth largest exporter in the world after offloading its stockpile. Under the direct instruction of the Prime Minister, MARD (Ministry of Agriculture and Rural Development) purchased 200,000 tons of rice in 2019, for instance directly from producers for central stockpiling and with price increasing goal (VMX MARD, 2019). In the case of a purchase through a functioning futures exchange such as MXV, this quantity could be of a much greater market impact and it should help market products at the convenient price as well.

#### 4.3 The Advantages of Introducing Public Warehousing in Vietnam

The public warehouse-based Lombard financing could have great importance in financing the rice, coffee, and other agricultural commodities market in the future in Vietnam. The method is similar to the characteristic of US or European methods; presented in (Figure 12).

*Figure 12. Public warehouse-based commodity marketing*



*Source: The authors' compilation.*

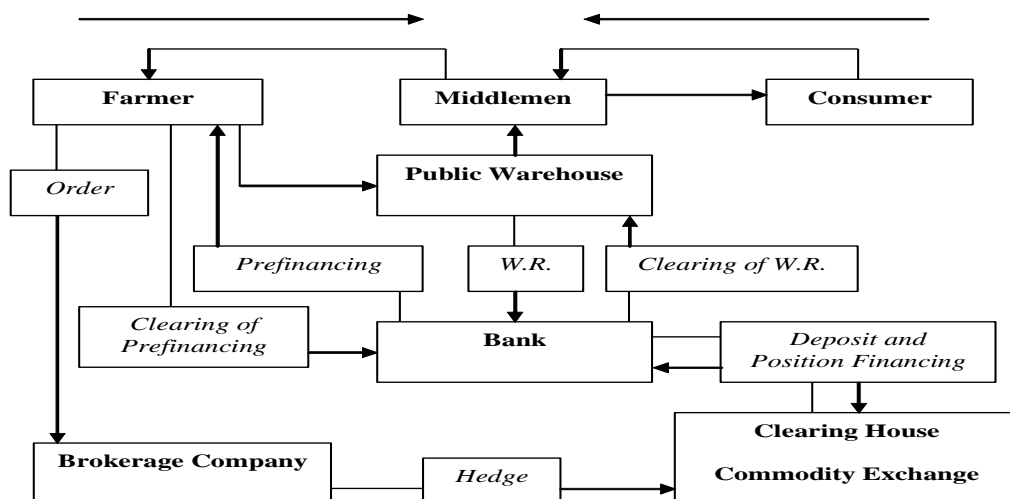
Vietnam needs new regulation to be able to use the public warehouse as a new market institution for two reasons. In one hand, a well-managed public warehousing system, which exists according to the method above, could force commercial banks to step into the commodity financing, while in the other hand it could support governmental stockpiling activity as well (Coulter and Onumah, 2002). The authors believe that market-based regulation can be used, and it would be the best solution to achieve pricing, regulatory and stock piling goals.

## 5. Suggestions

### 5.1 Combined Use of Market Institutions on the Vietnamese Market

Based on the introduction of new market institutions, public warehouse, and further development of the Vietnamese commodity exchange VXM all of advantages would be available for the participants on the rice, coffee, corn, pepper, etc., markets in Vietnam. The combination of possibilities offered by the two institutions gives the biggest chance to eliminate price risks. In the case of Lombard credits, it gives the best opportunity for both the borrower and the bank, namely: the borrower can have the highest credit amount as the lowest risk for the bank. This construction is called as *Lombard credit with a futures hedge background*. The method of commodity marketing by combination of public warehouse and a short hedge is shown in (Figure 13).

**Figure 13.** The structure of public warehouse-based commodity market with a short hedge



Source: Own study.

The institutions and the possibility to use the combination of advantages offered by

them would be available to all producers, traders, and consumers. The most important basic information required to do business is the price of the commodities. This determines the profit of the business.

There is no such a thing as average price information because it can vary according to the parity and the ways of storage, finance, and logistics. Knowing the special conditions of a given market, it is possible, however, it needs exact and accurate price calculations for selling, purchasing or production decisions for that market (Zakić *et al.*, 2014).

The three main agricultural products worth nearly USD 29 billion according to Table 2. and the amount and volume grow year by year. Vietnam exports an additional 5-6 million tons of table wheat, worth USD 1.5 billion and there are several other agricultural products that are possible to be included in public storage system. Just as a comparison, it can be underlined that the total Hungarian grain market is about 10-12 million tons, the value of which is approximately USD 2.8 billion, - less than ten percent of Vietnam's, grain market and its overall value is USD 1.2 billion less than just the Vietnamese coffee market. In the years before the EU accession of Hungary (2004), about 200 billion HUF (USD 0.7 billion) of liquidity was provided to Hungarian agricultural market due to the lack of resources with public warehouse-based Lombard credits, which was a great help for the production sector, which was difficult to finance with traditional banking instruments that time (Sagi, *et al.*, 2020a).

Based on the Hungarian and European experiences, 65% of the total storage and financing of the crops has been solved by producers, traders, and manufacturers, and approximately 35% of it is the potential quantity for public warehousing and Lombard financing. In the United States the latter is over 50%. There are no accurate statistics for Vietnam, but the ratio is likely to be much worse - that is, the public warehousing and Lombard financing ratio is higher, it could be around USD 15 billion (Sagi, *et al.*, 2020b).

## **5.2 A New Commodity Financing Method with Existing Regulations**

Over the past years the stock financing market – providing the capital demand that is the result of stockpiling and the characteristic strong seasonality observed in the agricultural sector – had increasingly grown and became more “practiced” by the market participants. Its size had reached an annual value of 1 billion USD in Hungary, of which the agricultural products had received the largest proportion through the various market participants (producers, integrators, traders, feed producers, mills). In the meantime, this market had become a part of competition between the commercial banks that are the largest financers of the sector, due to which the financing credit institutions had undertaken increasing risk levels, with respect to both degree of financing and the VAT financing related to stockholding.

The practice of commodity financing shows colourful picture in these days. Considering the excessive fall in prices and the actions of companies totally disregarding business ethics it seems necessary to reveal the full scope of risks inherent in commodity financing. The primary aim is to ensure the prudent operation of refinancing commercial banks.

In the shortage of public warehousing legal background in Vietnam there is an alternative solution for commodity financing suggestible which can provide a similar guarantee to the financier, while at the same time providing the commodity owners with the necessary resources, thus ensuring the right market prices are achieved, with the ability to sell at the right time.

The inherent risks in trade financing – as they had been proven by the experiences internationally – are not primarily found in the goods themselves, but rather at the actual storage facility and emerge in relation to the clients, and the inadequate and ineffective risk management of price volatility by the financiers. Therefore, the establishment of banking risk management and risk prevention techniques, the development of new procedures become indispensable, minimizing all types of risks that had emerged in previous years.

The optimal combination of applicable banking collaterals in structured commodity finance and commercial transactions allow the client to receive funding even if the client's financial situation and capitalization otherwise did not allow the establishment of a financing limit or if the client was loss-making, however the stocks were available in large, homogenous volume, immediately marketable at a traceable price.

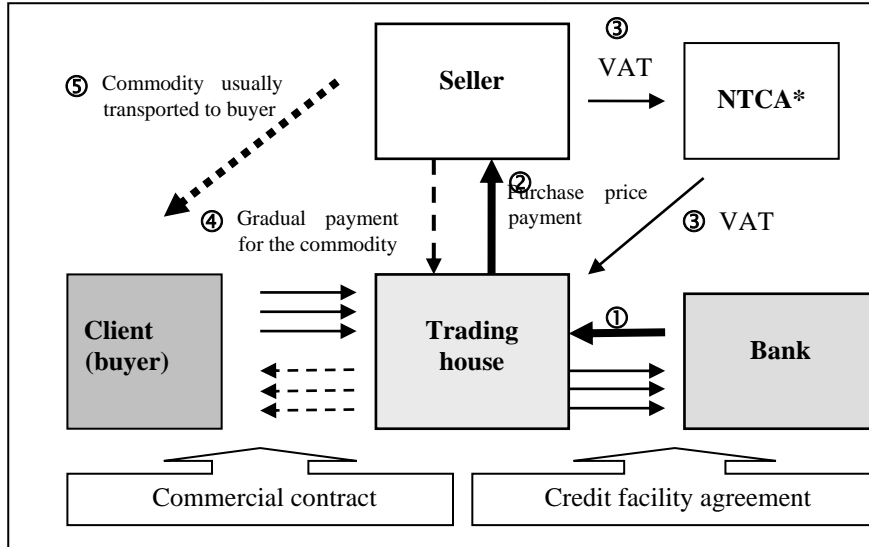
Trading house financing also represents a huge competitive advantage for banks, similarly to the public warehousing and Lombard financing, considering that the ownership of the goods acting as collateral provide greater loan security over most banking type (e.g., mortgage right) collateral, and the option of disposal over the goods are immediate. It is a further positivity that the clients may be financed over the financing limit and - when necessary - for transactions that are at the stage of work-out and the prior, intensive (restructuring) management can be dealt with rapidly and flexibly (collateral transfer).

It permits banks to enter the financing of such companies where the company – relying on its existing banking relations – cannot offer classic type collaterals (e.g., real estate), however with the buy-out of certain assets and stocks additional financing may be provided, with lending of considerably higher yield than applicable to other business sectors, that further expands the market options of banks.

Trading houses - similarly to other types of affiliates of banks are typically project-type companies that can perform invoiced commercial activities, acting as instrument

in such financing transactions where the acquisition of the ownership right of goods is preferred or is the only lending method (Figure 14).

**Figure 14.** *Methods of trading house financing model*



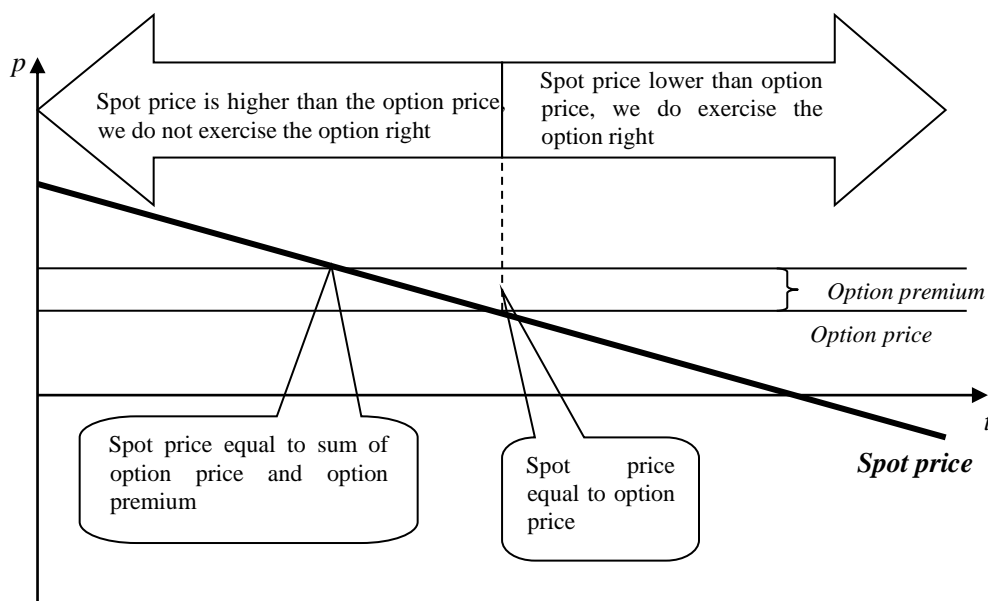
*Source: The authors' compilation*

It is also important from the prudential supervisory viewpoint, that the banks' commodity financing activities that are carried out through trading companies are performed with the involvement of such companies where the controlling, refinancing credit institution can exert an exclusive competence regarding the management of risks. The applied workflow during the activities is in every case dependent on the composition of the structure, and the type of goods, however the source of repayment is in all cases are the future cash flow from the sale of the goods.

The financing of the client is carried out against a revolving credit facility provided to the trading house by the refinancing bank. Its degree would be based on the client's previous financial year's procurement - stock levels - and sales data that are provided by the client. The trading company has disposal over the credit facility following the presentation of conditions and documentation proving the closed nature of the construction. In the case of this type of credit facility the repayment schedule is fixed, the repaid amounts may be used again according to the conditions set out in the financing structure.

During the transaction, the trading company acquires ownership rights of the goods/stocks from the client, and each time obtains loans from the refinancing bank for the financial settlement of the gross purchase price. The determination of the purchase price plays a highly important role in every financing facility. Trading house structured business model is basically based on the price difference of

purchased goods and their resale price. Based on the model, the trading house receives the stocks at a specified rate (compared to the value of goods at a pre-fixed rate) at a reduced price - that the seller (client) intends to repurchase during the provided option period but the latest on the last day of the option period, which is maximum one year. The implementation of the option ensures the contractual collateral that – in case of a sufficiently quick reaction – it may prevent the loss-generating devaluation of stocks (Figure 15). Thus, both the refinancing and the trading house capital are protected from a possible price depression.



**Figure 15.** *Methods of exercise long put option rights*

*Source: The authors' compilation.*

At the time of goods purchase, the trading house – simultaneously with the purchase-sale contract – also concludes two option contracts. In the one hand, the trading house provides a short call option right to the seller of the goods for the repurchase during the term, while in the other hand, establishes a long-put option right to reduce its risks. The latter means a purchase obligation to the seller.

In the case that the trading house experiences the unplanned increase in risks regarding a given transaction, acting within the options allowed by the contractual framework, utilizing its option rights it may call upon the client for the repurchase of the goods, in the event of non-compliance by the seller, the trading house has the option to sell the stocks on the open market without any sanctions.

With the establishment of the call option, it remains the discretionary right of the trading house that in case of default or fraud event steer the closing of the transaction

towards commodities risk (possession, sale), or in the case of better borrowing capacity clients placing emphasis on company risk utilizing the put option forcing the client to repurchase the goods.

### **5.3 The Practice of Commodity Financing Method by Trading House**

The possibility of risk management role of the trading house, a practical solution which is introduced below. If the trading house is involved in the financing business it means, then the credit will arrive to the real client (the producer or any other commodity owner) indirectly. The bank grants the credit to the trading house who buys the stocks from the client. The client collects the credit as the revenue of selling and gets a right or an obligation 'depending on the market situation' to buy the stocks back.

What is the main reason of the involvement of the trading house? The answer is simple: ownership is the strongest collateral. It is forbidden to be stock owner, for financiers. Because of this, the bank-controlled trading house will become the owner of the credit cover stocks, instead of the bank assured the collateral of the credit.

There are two solutions for the bank to control the trading house:

1. The trading house is owned by the bank in 100%: In this case the control is absolute; the trading house becomes the part of the bank group system. This solution may raise anxieties from the supervising authorities' point of view. The trading house activity seems to be crediting activity, which is the privileged pursuit of banks.

2. The trading house is an independent company: In this case the worries mentioned above are eliminated, but ensuring the absolute control is a bit complicated. The solution is that the trading house must be involved in the business with its owned resources in an extent of 5-10% as well, at the same time the bank gets option to buy majority of the shares of the trading house. This solution is much more market friendly. Because of the independent position of the trading house the basis of the potential partners is much wider. In this case the guarantee background of the financing construction must be precisely solved particularly from price risk management point of view.

There are two possibilities of ensuring of the price of stocks and the value of the collateral at the same time: pre-contracted selling positions for the whole stock with large valuable buyers or hedge in the futures market.

The practical solutions of the financial construction:

*First solution:* It is necessary to establish a 'buying-consignee' contract between the trading house and the client (seller of the stocks). In the framework of this agreement the client takes responsibility to sell the stock 'owned by the trading



house' in his name, but in favour of the trading house for a pre-contracted valuable buyer.

*Second solution:* The trading house sells the stock directly to a pre-contracted valuable buyer on his own right.

Calculation of the buying price 'the valuation of the collateral and the volume of the credit' of stocks:

BASIC PRICE (buying price of the pre-contracted valuable buyer)  
– profit of Trading House  
– fee of quality control  
– costs of warehousing  
– cost of stock insurance  
– cost of stock manipulation  
– consignee fee  
– cost of delivery  
– costs of documentation  
= BUYING PRICE

*Third solution:* The trading house hedges the selling price of the stock in the futures market. The calculation of the buying price in this case:

BASIC PRICE (the hedged price in the futures market)  
– costs as above  
– costs of the Exchange  
– cost of position financing on the Exchange  
= BUYING PRICE

This solution theoretically works any futures market in case of any commodity. In case of Vietnam, the door will open for the third solution soon, with the development of futures Commodity Exchange on Vietnam Mercantile Exchange. After all this looks to be an efficient pattern that can be applied for other sectors and adopted by other developing countries. The authors believe that the establishment of such an integrated financing model in vertical integration / supply systems can generate a win-win type of co-operation for all the stakeholders.

## **6. Summary**

This study is based on seven-year-long history of connection building, lecturing and examinations of Vietnamese and international sources, furthermore, based on primary research in acquiring direct information from several academic and non-academic experts and prestigious market participants on the examined market.

Vietnam has one of the strongest agricultural production potential and effective production in several fields of agriculture. In case of coffee and rice production one

of the leaders of the world and one of the biggest exporters at the same time. The economy of the country is developing very fast and has up-to-date technologies in a plenty of cases, financing and logistics are among them, but there are two areas to be improved such as the commodity exchange futures trading and the public warehousing, together with the agricultural commodity-based Lombard Financing.

Based on the several years long international experience and examinations of the Vietnamese market, after presenting the current market situation, this study tries to propose the introduction of public warehousing, and the development of commodity exchange.

The combined use of the functions of these institutions could help grain market participants, such as producers, manufactures, traders, and financiers for convenient business decisions, price, and credit risk management, and able to involve extra financing resources to the Vietnamese agriculture in an extent of USD 10 Billion. Beyond market participants' advantages, these solutions can help to reach market regulation and stockpiling strategy goals for Vietnamese Government. These techniques offer relatively new solutions but could contribute to the further development of these fields and eventually of other sectors as well.

## References:

- Actualitix. 2020. World Atlas - Statistics by country  
<https://en.actualitix.com/country/vnm/vietnam-gross-domestic-product.php>.
- Belozertsov, A., Rutten, L., Hollinger, F. 2011. Commodity exchange in Europe and Central Asia a means of management of price risk. Working paper, no. 5, FAO/World Bank, Rome, 3-17.3.
- Buon Ma Thuot. 2018. Coffee and Commodity Exchange database, HaNoi
- Castle, Becker, Nelson. 1992. Farm Business Management: The Decision-Making Process. New York.
- CME Group (2000-2019): ICE; NASDAQ; IG UK; FAO database. Chicago.
- Coulter, J., Onumah, G. 2002. The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods. Food Policy, vol. 27, no. 2, 319-337.
- Erdeiné Késmárki-Gally, Szilvia Fenyvesi, László, 2014. A new agricultural electronic marketplace, the way forward for the procurement of inputs. 2014 International Congress, August 26-29, Ljubljana, Slovenia 182953, European Association of Agricultural Economists. <https://ideas.repec.org/p/ags/eaee14/182953.html>.
- GDC. 2017. ITC-Trade map.
- GSO. 2016. General Statistic Office of Vietnam; Statistical yearbook. Census on Agriculture, Forestry and Aquaculture, and IO Balance Sheet. HaNoi.
- GSO. 2017. General Statistic Office of Vietnam. Statistical yearbook. HaNoi.
- HNX 2000-2019. Hanoi Stock Exchange database. HaNoi.
- HOSE 2000-2019. Ho Chi Minh City Stock Exchange database. HCMC.  
<https://livericeindex.com>.
- IPSARD. 2017. Institute of Policy and Strategy for Agriculture and Rural Development  
Repositioning Vietnam agriculture. Internal working paper. HaNoi.

- Kozár, L., Neszmélyi, Gy. 2017. Hungarian Endeavours for the Enhancement of Economic Relations in Southeast Asia Focusing on a New Partnership with Vietnam Abstract - Applied Studies in Agribusiness and Commerce, (1789-221X 1789-7874), 11, 5-12.
- MARD. 2017. Ministry of Agriculture and Rural Development Database. HaNoi.
- MONRE. 2017. Ministry of Natural Resources and Environment Database on land use and water resources. HaNoi.
- Neszmélyi, Gy. 1999. Main Characteristics and Prospects for Foreign Trade Relations Between Hungary and the ASEAN Countries. Hungarian Agricultural Research: Environmental Management Land Use Biodiversity, Vol 8, No. 3, 19-22.
- New York Mercantile Exchange. 2005. Option Strategies, NYMEX, New York.
- Nguyen Ngoc Mai. 2018. A Review of Vietnam's Recent Agricultural Policies. FFTC Food and Fertilizer Policy Platform. <https://ap.fftc.org.tw/article/1324>.
- Nguyen Tung. 2019. Vietnam's rice sector forecast to face difficulties in 2020. Hanoi Times, 21-12-20.  
<http://hanoitimes.vn/vietnams-rice-to-face-difficulties-in-2020-300566.html>.
- Ortmaier, E. 1972. Zur lösung linearer stochastischer Optimierungsprobleme beider landwirtschaftlichen Betriebsplanung. Meisenheim (am Glan), Hain.
- Roache, K. 2008. Commodities and the Market Price of Risk, WP 08/221. International Monetary Fund, Washington, D.C.
- Sági, J., Vasa L., Lentner, C. 2020a. Innovative Solutions in the Development of Households' Financial Awareness: A Hungarian Example; Economics and Sociology 13: 3 pp. 27-45., 19 p. (2020)
- Sági, J., Chandler, N., Lentner, C. 2020b. Family businesses and predictability of financial strength: A Hungarian study. Problems and Perspectives in Management, 18, 2, 476-489.
- Sokil, O., Zhuk, V., Vasa, L. 2018. Integral assessment of the sustainable development of agriculture in Ukraine. Economic Annals-XXI, 170(3-4), 15-21.
- Thuy, Nguyen Thi Thu, Vasa, L. 2018. Description of the Agricultural Development in Vietnam and the ASEAN Countries (South East Asian Countries). Köztes-Európa, 10(1), 105-18. <https://ojs.bibl.u-szeged.hu/index.php/vikekke/article/view/12784>.
- Tilton, J. 2010. Investor demand and spot commodity prices. Resources Policy, no. 36, Elsevier, Amsterdam.
- USDA. 2019. Office of Global Analysis. Washington, D.C.
- USDA Foreign Agricultural Service. 2015. Commodity Intelligence Report Southeast Asia: 2015/16 Rice Production Outlook at Record Levels.  
[https://ipad.fas.usda.gov/highlights/2015/06/Southeast\\_Asia/Index.htm](https://ipad.fas.usda.gov/highlights/2015/06/Southeast_Asia/Index.htm).
- USDA Foreign Agricultural Service. 2020. Commodity Intelligence Report - Vietnam Rice: Ongoing Downward Trend Expected to Continue for MY 2020/21 Harvested Area.  
<https://ipad.fas.usda.gov/highlights/2020/09/Vietnam/index.pdf>.
- Vasa, L. 2011. Evaluation of the Hungarian transition model of the agriculture after the economic and political changes. Annals of Agrarian Science, 9(3), 104-112.
- VMX 2000-2019. Vietnam Mercantile Exchange database, HaNoi.
- Zakić, V., Kovačević, V., Ivkov, I., Mirović, V. 2014. Importance of Public Warehouse System for Financing Agribusiness Sector. Economics of Agriculture, 4/2014, Beograd.